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Notice of Allowability	Application No.	Applicant(s)	
	10/607,019	ROHRIG, HENRY	
	Examiner	Art Unit	
	Tania C. Courson	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed March 22, 2005.
2. ☒ The allowed claim(s) is/are 29.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 24JUN05.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input checked="" type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Henry Rohrig on June 22, 2005. The application has been amended as follows:

2. The following changes have been made to the application in order to clearly describe the invention and to define the claimed invention over the prior art of record:

In the Specification:

Replace paragraph 037 with the following:

-- Fig. 22 is a perspective exploded view of the hinge we designed as depicted in Fig.

12. --

Replace paragraph 039 with the following:

-- Referring to the drawing starting with Fig. 1 is a perspective view showing a truck in phantom to make it easier to see the function of said apparatus. At this time, jack the steering axle and rotate the wheel checking the bearings for their condition and tightness. If required you must replace bearings or recalibrate. Checking the wheel movement, top to bottom, making sure

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the king pin and bushing are not worn. Move the wheel from side to side to see if you have any movement in the tie rod ends or drag link, and with a steel pry bar make sure the spring bushing in the front and rear of the spring are not worn excessively. Repeat on the other side. When everything checks out, you lower the wheels onto the roller plates (1). See Fig. 7 through Fig. 11 for parts breakdown which are used to make up the complete apparatus using roller steel plates (27) and (28) which are used when adjusting so the axle will move freely with the weight of the truck. --

Replace paragraph 040 with the following:

-- In Fig. 1, steering axle apparatus (2) is shown on the passenger side. Steering wheel apparatus (3) is shown on the driver side. See Fig. 3 and Fig. 4 for parts breakdown on these units. The apparatuses are used in conjunction with the steering axle trammel rod (7) having points, see Fig. 13 through Fig. 15 for parts breakdown. The trammel rod (7) is shown resting on steering axle apparatuses (2) and (3) as seen in Fig. 1. There are indentations (22) on the top of the bottom support (63) at each end and numbered 1 through 4 with black background. The indentions (23) in the back section are shown with a red background, and these are pre-set indentations. So when the rod is adjusted in front and moved to the back, and it aligns with the same number, then the toe-in is correctly set. --

Replace paragraph 041 with the following:

-- In Fig. 1, jack the rear drive axle and rotate the wheel and check the bearings for condition and tightness. Check the brake drums to make sure they are not rubbing, or the brakes

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are not out of adjustment. It's important to check the wheel for movement, top to bottom and side to side, if required the bearings will need to be replaced or recalibrated. The other side needs to be checked also. When everything checks out, lower wheels onto roller plates (1). See Fig. 7 through Fig. 11 for parts breakdown as explained before. --

Replace paragraph 042 with the following:

-- In Fig. 1, you install the drive axle apparatus (4) on the passenger side, and drive axle apparatus (5) on the driver side, see Fig. 5 and Fig. 6 for parts breakdown on these units. The bottom and lower front pins (13) are fixed to locate the wheel. The two threaded rods (9) hold the unit to the wheel. Rotate the other four pins (14) to rest in wheel radius and tighten bolts. A short trammel rod (6) having an adjustable point is used on both sides, as shown in Fig.1. One end touches the outside of the frame rail, as seen in Fig. 1 and Fig. 2, and the other end with adjustable point rests in one of the indentations (66) with red background on the top support (64). You set it and then check the same place on the other side. If not the same, you add or remove shims under the transverse rod bracket to the frame rail to center frame on the axle. To accomplish the alignment, you turn on the laser light device (26) on both sides. The laser is installed on the bottom support (65) which projects a light onto the scale (17) and (25) located on the steering axle apparatus (2) and (3), respectively. If they do not align on the same number, you will adjust the drive axle to align it correctly. When completed you will remove the apparatus and jack the truck and remove the roller plates. If the vehicle has two drive axles, then proceed to the forward drive axle and complete in the same manner. --

Replace paragraph 043 with the following:

-- Fig. 2 is a perspective drawing showing a view of the trailer phantom to make it easier to see the function of said apparatus. You install the trailer apparatus (11), see Fig. 12 for parts breakdown, under the front section of the trailer touching the steel plate (36) to the king pin, and swing the two adjustable legs (35) backward and down resting them on the ground or floor to hold the unit in place. --

Replace paragraph 044 with the following:

-- In Fig. 2, jack the rear axle and rotate the wheel and check the bearings for condition and tightness. Check the brake drums to make sure they are not rubbing or the brakes are not out of adjustment. Check to see if there is wheel movement, top to bottom or side to side. If so, you must replace bearings or recalibrate. Check the other side. When everything checks out, lower wheels onto the roller plates (1), see Fig. 7 through Fig. 11 for parts breakdown. They are the same units as used with the truck alignment in Fig. 1. --

Replace paragraph 045 with the following:

-- In Fig. 2, you install the drive axle apparatus (4) on the right side and the drive axle apparatus (5) on the left side. See Fig. 5 and Fig. 6 for parts breakdown, they are used in the same way as on the truck. The bottom and lower front pins (13) are fixed to locate the wheel. The two threaded rods (9) hold the unit to the wheel. Rotate the other four pins (14) to rest in

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wheel radius and tighten bolts. A trammel rod (10) is used on both sides as shown, one end touching the outside of the frame rail and the other end with the adjustable point resting in one of the indentions (66) with red background on the top support (64). You set it and then check the same place on the other side. If not the same, correct as you did on the truck. To accomplish the alignment, you turn on the laser light device (26) on both sides. The laser is installed on the bottom support (65) which project a light onto the scale (17) and (25). The scales (17) and (25) are located on the scale support (38) as shown in Fig. 12. If it is not the same number on both scales, the axle will be adjusted to align up correctly. After this, jack and remove the roller plates and the apparatuses (4) and (5) from the wheels. If you have two axles, then proceed to the forward axle and complete in the same manner. --

Replace paragraph 046 with the following:

-- Fig. 3 is a perspective exploded drawing for the steering axle apparatus (2) used on the steering axle wheel of the passenger side for geometric alignment of the suspension, including the wheels. The steering wheel apparatus (2) is manufactured using aluminum bar stock and welded together. The main body consists of a vertical center upright support (33), a horizontal top support (62) and a horizontal bottom support (63), a 7" scale support (37), locator pins (13) with hole and steel insert in center for fixed locator pins and locator pins (14) with hole and steel insert eccentric for aligning with the wheel, all locator pins use a chain (15) which attaches to the locator pin so they will not get lost or damaged, a short J-hook having a threaded rod (16) is used to hold the apparatus onto the wheel with a spring (19), washers (20) and wing nuts (21), a right hand scale (17), an allen bolt (18) is used to attach locator pins for support, indentions (22) and

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(23) are located on the bottom support (63) for precise measuring and a three hole group (24) is used for 19.5", 22.5" and 24.5" size wheels. --

Replace paragraph 047 with the following:

-- Fig. 4 is a perspective exploded drawing for the steering axle apparatus (3) used on the steering axle driver side wheel for geometric alignment of the suspension system, including wheels. The steering axle apparatus (3) is manufactured using aluminum bar stock and welded together. The difference between the steering axle apparatus (2) on the passenger side and the steering axle apparatus (3) on the driver side is the following: left hand scale (25) and right hand scale (17). --

Replace paragraph 048 with the following:

-- Fig. 5 is a perspective exploded drawing for the drive axle apparatus (4) used on the drive axle wheel passenger side for geometric alignment of the suspension, including the wheels. This apparatus is manufactured using aluminum bar stock and welded together, it consists of an vertical center upright support (33), a horizontal top support (64) and a horizontal bottom support (65), a long J-hook (9) is used to hold the apparatus onto the wheel with a spring (19), washers (20) and wing nuts (21), locator pins (13) with hole and steel insert in center for fixed locator pins and locator pins (14) with hole and steel insert eccentric for aligning with any wheel, a chain (15) attaches to the locator pin so they will not get lost or damaged, an allen bolt (18) attaches the locator pins for support, indentions (66) are located on the top of the top support (64) with a

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red background, a three hole group (24) is used for 19.5", 22.5" and 24.5" size wheels and a laser beam device (26) is attached to the bottom support (65). --

Replace paragraph 049 with the following:

-- Fig. 6 is a perspective exploded drawing for the drive axle apparatus (5) used on the drive axle wheel drive side for geometric alignment of the suspension, including the wheels. This apparatus is manufactured using aluminum bar stock and welded together, it consists of an vertical center upright support (33), a horizontal top support (64) and a horizontal bottom support (65), a long J-hook (9) is used to hold the apparatus onto the wheel with a spring (19), washers (20) and wing nuts (21), locator pins (13) with hole and steel insert in center for fixed locator pins and locator pins (14) with hole and steel insert eccentric for aligning with any wheel, a chain (15) attaches to the locator pin so they will not get lost or damaged, an allen bolt (18) attaches the locator pins for support, indentions (66) are located on the top of the top support (64) with a red background, a three hole group (24) is used for 19.5", 22.5" and 24.5" size wheels and a laser beam device (26) is attached to the bottom support (65). --

Replace paragraph 050 with the following:

-- Fig. 7 through Fig. 11 is depicted in this perspective exploded drawing for the apparatus used with geometric alignment of the suspension system. Fig. 7 is an overall Figure which depicts the items found in the following: Fig. 8 which shows a bottom steel plate (27) and a top steel plate (28), Fig. 9 which shows a top steel plate (28) the same size as the bottom steel plate (27), Fig. 10 which shows an aluminum square block unit (29) with a hole (30) through the

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center, and Fig. 11 which shows, as Prior Art, a ball transfer (32) 30 MAC which is pressed into the center hole (30) and there are two holes (31) on opposite corners using two screws and nuts each. Fig. 7 shows 9 units (29) attached to the bottom steel plate (27). The top steel plate (28) lays on top of the steel units (29) which are attached to the bottom steel plate (27) and comprises a roller plate (1), which is depicted in Fig. 1 and Fig. 2. They are to be placed under the wheels when performing an alignment. --

Replace paragraph 051 with the following:

-- Fig. 12 is a perspective exploded drawing for the trailer apparatus (11) used on the trailer for geometric alignment of the suspension, including the wheels. This apparatus is manufactured using 4130 steel tubing. The top member (34) has a support (67) on each side extending down, and one on a 45 degree from the bottom (68), inward and upward to the top member and are welded at the joints. At the bottom on each side there is a scale support (38) also welded. On the scale support you will find a scale (17) on the right side, and a scale (25) on the left side where the laser beam light projects the position of the trailer axles onto when performing the alignment. Steel plate (36) is welded with a cut out that rests against the king pin when installed on the trailer, the adjustable legs (35) are held in place with a clip (39) when not in use, side upright support members (67) brace the supports (68). For the alignment, you would lower legs and swing, then to the rear and down resting on the ground or floor. To calibrate this apparatus, you use the long trammel rod and points placing one point on the top support, there is an indentation with a background and then place the other point on the 3" mark on the scale, and

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then swing to the other side's 3" mark and set that scale to the same setting, and this would be calibrated. --

Replace paragraph 052 with the following:

-- In starting the alignment, you first install the apparatus on the king pin while adjusting the two legs which hold it in place. Jack the rear axle and rotate the wheels while checking the bearings for their condition and tightness. Check the brake drums to make sure they are not rubbing, or the brakes are not out of adjustment and check the wheel if there is any movement top to bottom or side to side. If so, you must replace the bearings or recalibrate. When everything checks out, lower wheels onto roller plates (1). --

Replace paragraph 054 with the following:

-- Fig. 13 through Fig. 15 is a perspective drawing of a trammel rod with points assembled. They are Prior Art general tools, item #520 manufactured of aluminum rods in three lengths for this invention, they use the trammel points. Trammel rod assembly (6) uses rod (42), a fixed point (44) and an adjustable point (45). Trammel rod assembly (7) uses rod (43), a fixed point (44) and an adjustable point (45). Trammel rod assembly (10) uses rod (41), a fixed point (44) and an adjustable point (45). Fixed point (44) slides on rod for first setting and adjustable point (45) is used for fine tuning. --

Replace paragraph 055 with the following:

-- Fig. 16 through Fig. 18 is a perspective exploded drawing for the apparatus used on all vehicles for geometric alignment of the suspension, including the wheels. Fig. 16 depicts one of our locator pins showing the one end that is machined with a shoulder and a rounded end. We are using this end on all our locator pins to rest into the radius on the wheels. Fig. 17 depicts the other end (47) which is the same for all fixed pins (13), the hole and steel insert are in the center of the pin. Fig. 18 depicts the other end (48) which is the same for all eccentric pins (14) that has the hole and steel insert located off center. This is necessary for this to be eccentric and to be adjustable to fit all wheels. --

Replace paragraph 056 with the following:

-- Fig. 19 depicts the right hand scale (17) manufactured for this invention. Fig. 20 depicts the left hand scale (25). They are manufactured as a set so they will be more accurate. --

Replace paragraph 057 with the following:

-- Fig. 21 is a perspective exploded drawing for the apparatus used to calibrate the apparatus depicted in Fig. 1 and also depicted in Fig. 3 through Fig. 6. The base plate (50) is manufactured using aluminum plate stock has a rectangular shape and has a leg (53). The other plate (51) has a triangular shape with legs (53). The plates are welded together. There are two cut-outs (52) for carrying the unit. The J-bolt (9) is used to hold the apparatuses onto the wheels wherein they are used here also. Each apparatus is installed on this jig, using the laser beam light in the same manner, but to calibrate the apparatuses, you move the scale to line up correctly and tighten the screws. --

Replace paragraph 058 with the following:

-- Fig. 22 is a perspective exploded drawing used for the hinge assembly manufactured for this invention, it is attached to the top member (34) which is part of Fig. 12. Fig. 22 depicts a hinge assembly (40) and shows a breakdown showing an end unit (12) which was machined from 75 ST aluminum round stock to fit into the adjusting leg (35) and held in place with a bolt and nut (60), the section remaining is machined to fit into a u-channel (54) with the hole (58) and this unit is held together with nut (56) and bolt (57) at this point. This is attached to the top member (34) using a screw and nut (55) through hole (61). There are two hinge assemblies (40) required per unit. This hinge is required to move in two directions. --

In the Claims:

Cancel Claims 1-28:

Add new claim 29:

-- 29. (new) A system for aligning the suspension and geometric design of a vehicle with wheels thereof which comprises:

a drive axle apparatus attached to a drive axle wheel on each side of the vehicle, wherein each drive axle apparatus supports a laser beam device that projects a laser beam;

a steering wheel apparatus attached to a steering wheel axle on each side of the vehicle, wherein each steering wheel apparatus supports a scale which receives the laser beam from the laser beam device attached to each drive axle apparatus;

each apparatus comprises a vertical center upright support having a horizontal top support and a horizontal bottom support, six locator pins located on the supports and used to locate each wheel, a threaded rod located at the intersection of the center upright support and the top support and the intersection of the center upright support and the bottom support, each threaded rod having a J-hook to hold each apparatus in place on the wheel;

each steering axle apparatus having indentions located on the top of the bottom support at each end of the bottom support for supporting points of a trammel and rod;

each drive axle apparatus having indentions located on the top of the top support at one end of the top support for supporting points of a trammel and rod;

the steering axle trammel and rod having a fixed point and an adjustable point is used in conjunction with the steering axle apparatuses in the front and back of the wheels to set the correct toe-in;

the drive axle trammel and rod having a fixed point and an adjustable point is used in conjunction with each drive axle apparatus and the frame rails of the vehicle to check if the frame rails are centered on the drive axle;

each apparatus is attached to all wheels on both axles at the same time and used in conjunction with the trammels and rods and furthermore used in conjunction a roller plate located at each wheel. --

Drawings

3. The following changes to the drawings have been approved by the examiner and agreed upon by applicant:

The following revisions are made to Figures 3-6, 9-15 and 17-21.

- a) Fig. 3 - Added an arrow to numeral 2;
- b) Fig. 4 - Added an arrow to numeral 3 and changed numeral 22 to 23;
- c) Fig. 5 - Added an arrow to numeral 4;
- d) Fig. 6 - Added an arrow to numeral 5;
- e) Fig. 9 - Added an arrow to numeral 28;
- f) Fig. 10 - Added an arrow to numeral 29 and added another numeral 31;
- g) Fig. 11 - Added an arrow to numeral 32;
- h) Fig. 12 - Added an arrow to numeral 11;
- i) Fig. 13 - Added an arrow to numeral 7 and added "Prior Art";
- j) Fig. 14 - Added an arrow to numeral 6 and added "Prior Art";
- k) Fig. 15 - Added an arrow to numeral 10 and added "Prior Art";
- l) Fig. 17 - Added an arrow to numeral 13;
- m) Fig. 18 - Added an arrow to numeral 14;
- n) Fig. 19 - Added an arrow to numeral 17 and added "Prior Art";
- o) Fig. 20 - Added an arrow to numeral 25 and added "Prior Art";
- p) Fig. 21 - Added an arrow to numeral 8.

In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tania C. Courson whose telephone number is (571) 272-2239. The examiner can normally be reached on Monday-Friday from 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached on (571) 272-2245.

The fax number for this Organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DIEGO F.F. GUTIERREZ
SUPERVISORY PATENT EXAMINER
GROUP ART UNIT 2859

TCC
June 24, 2005

CHRISTOPHER W. FULTON
PRIMARY EXAMINER

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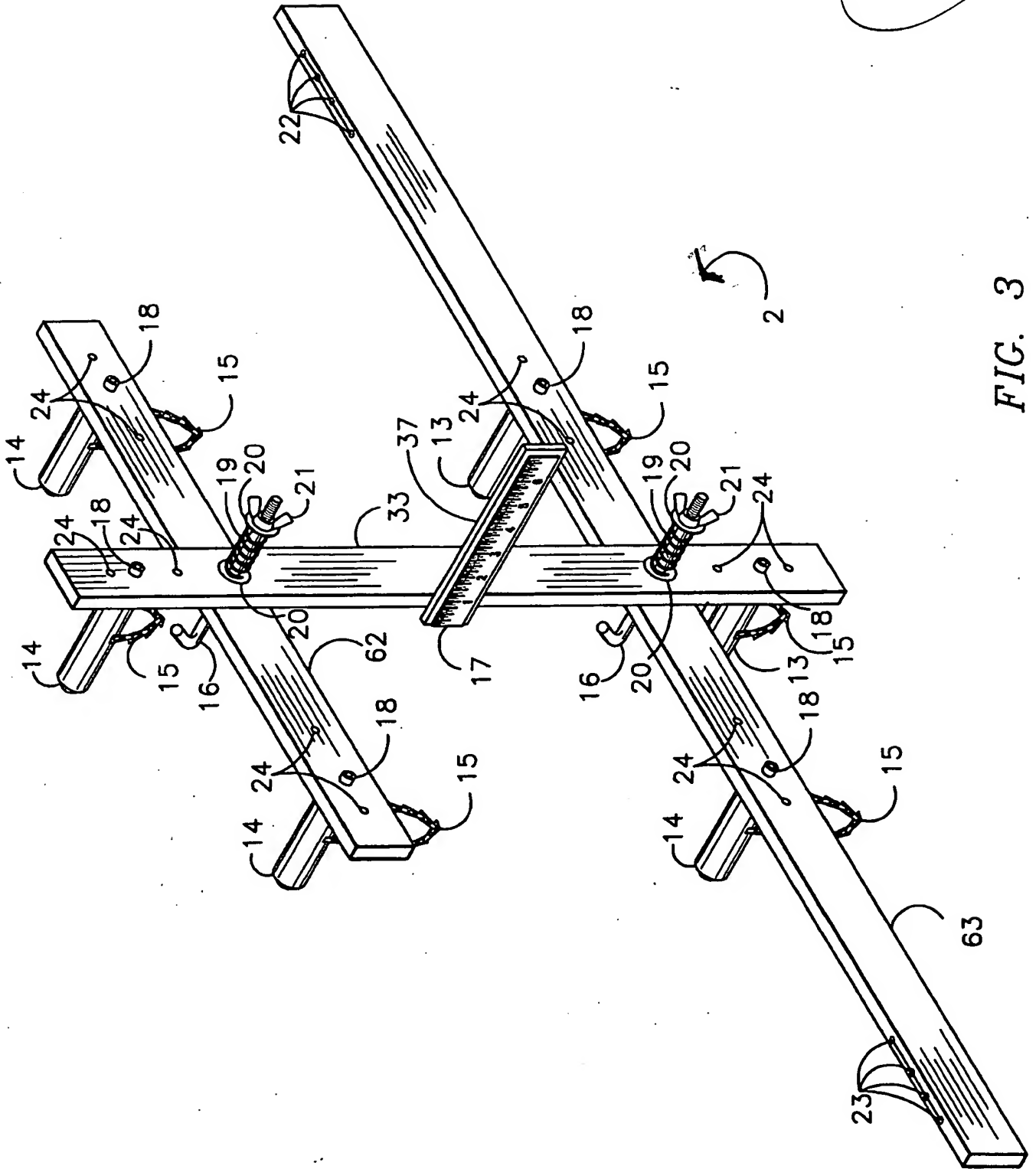


FIG. 3

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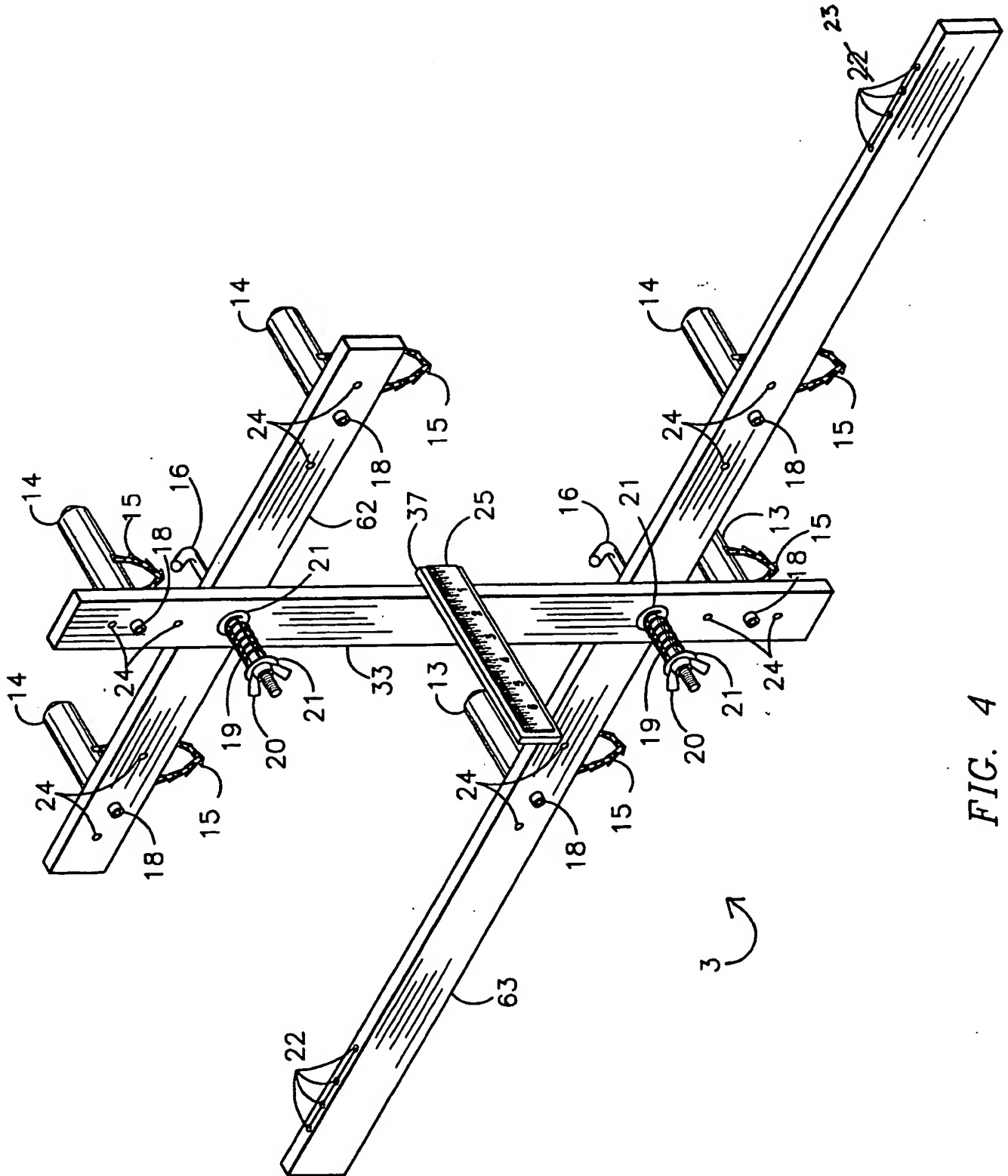


FIG. 4

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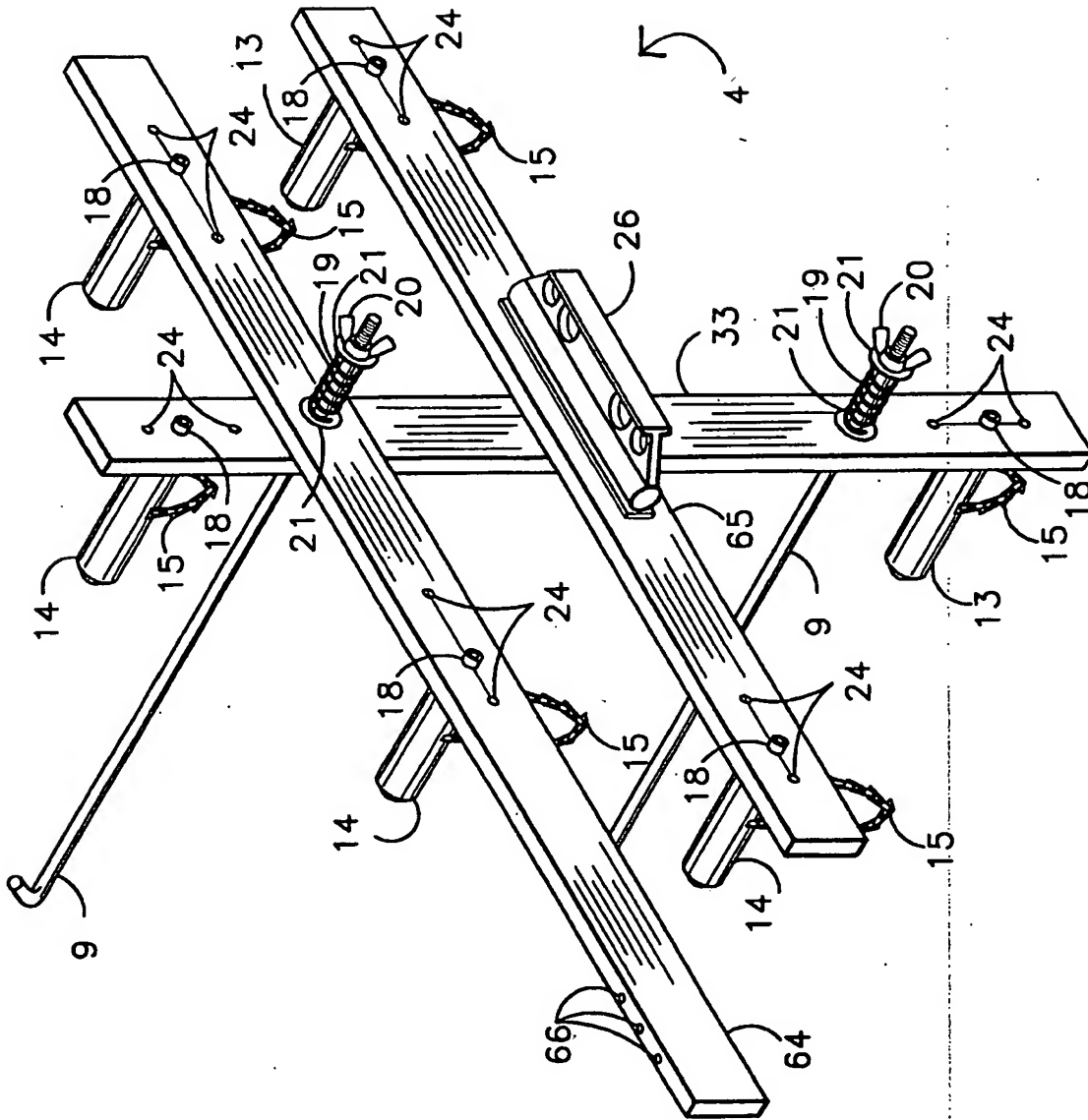


FIG. 5

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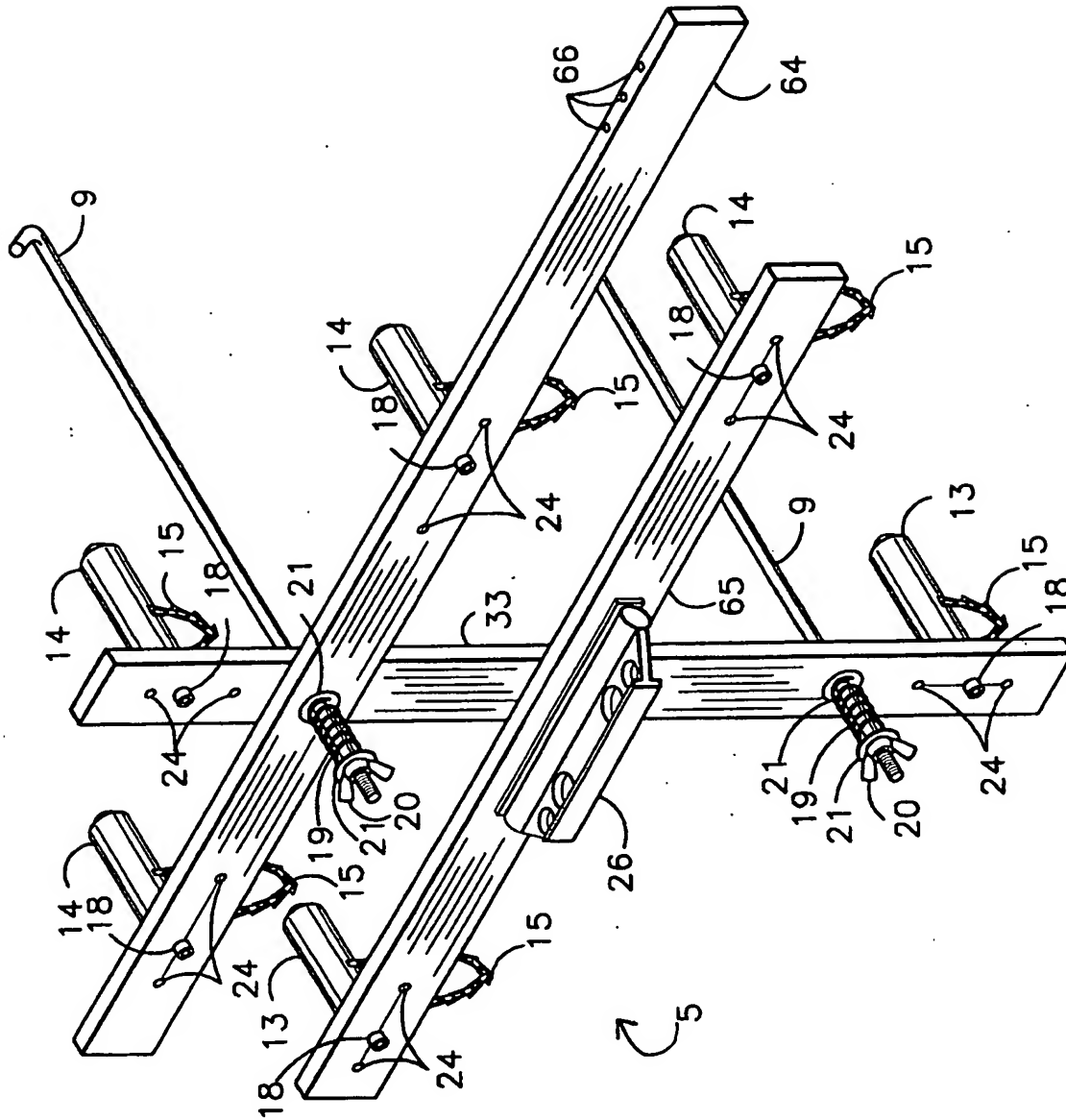


FIG. 6

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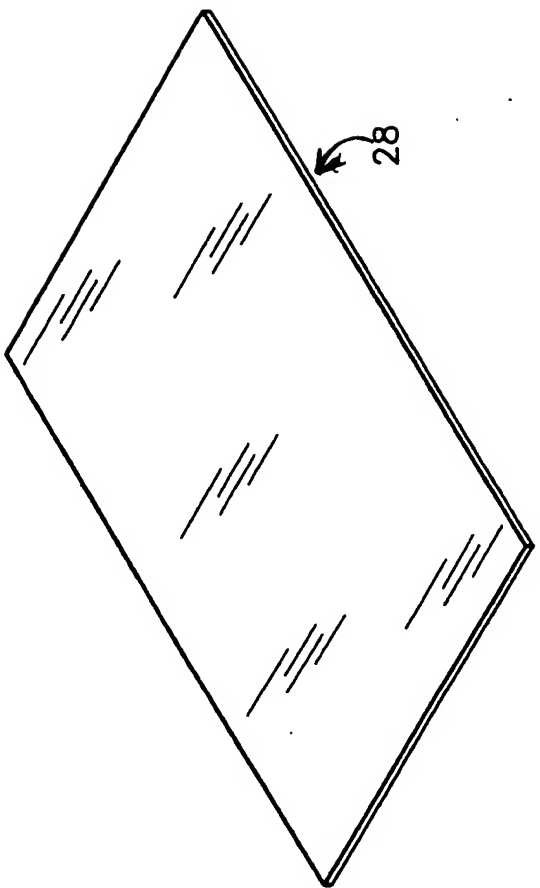


FIG. 9

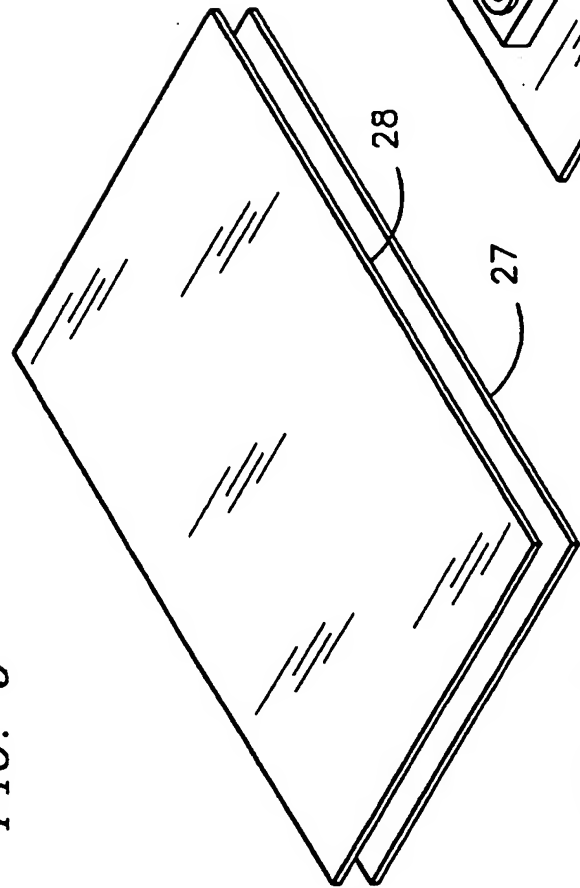


FIG. 8

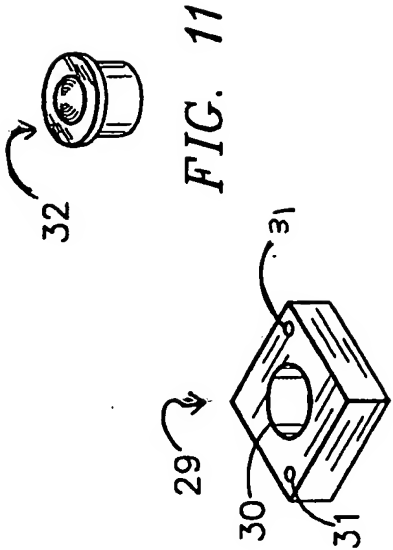


FIG. 11

FIG. 10

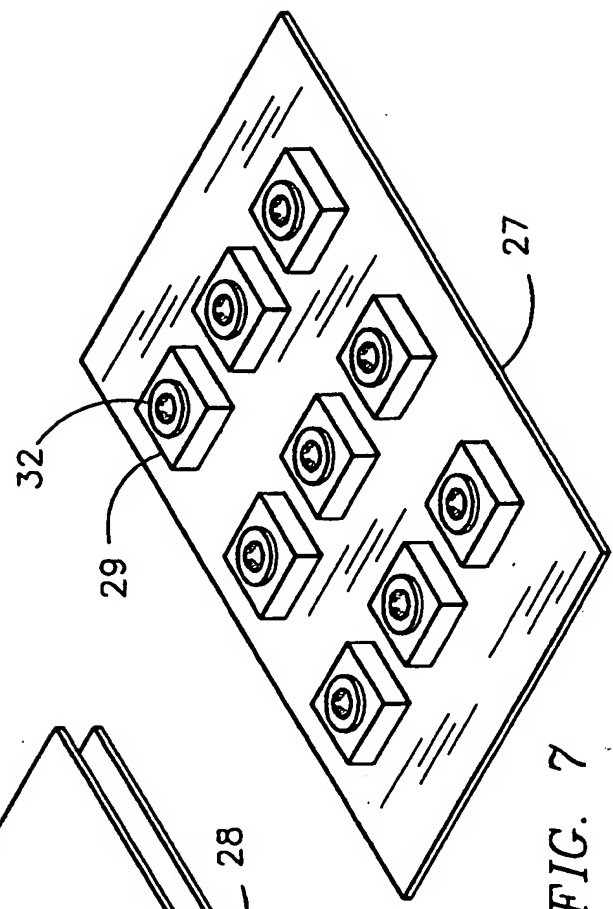


FIG. 7

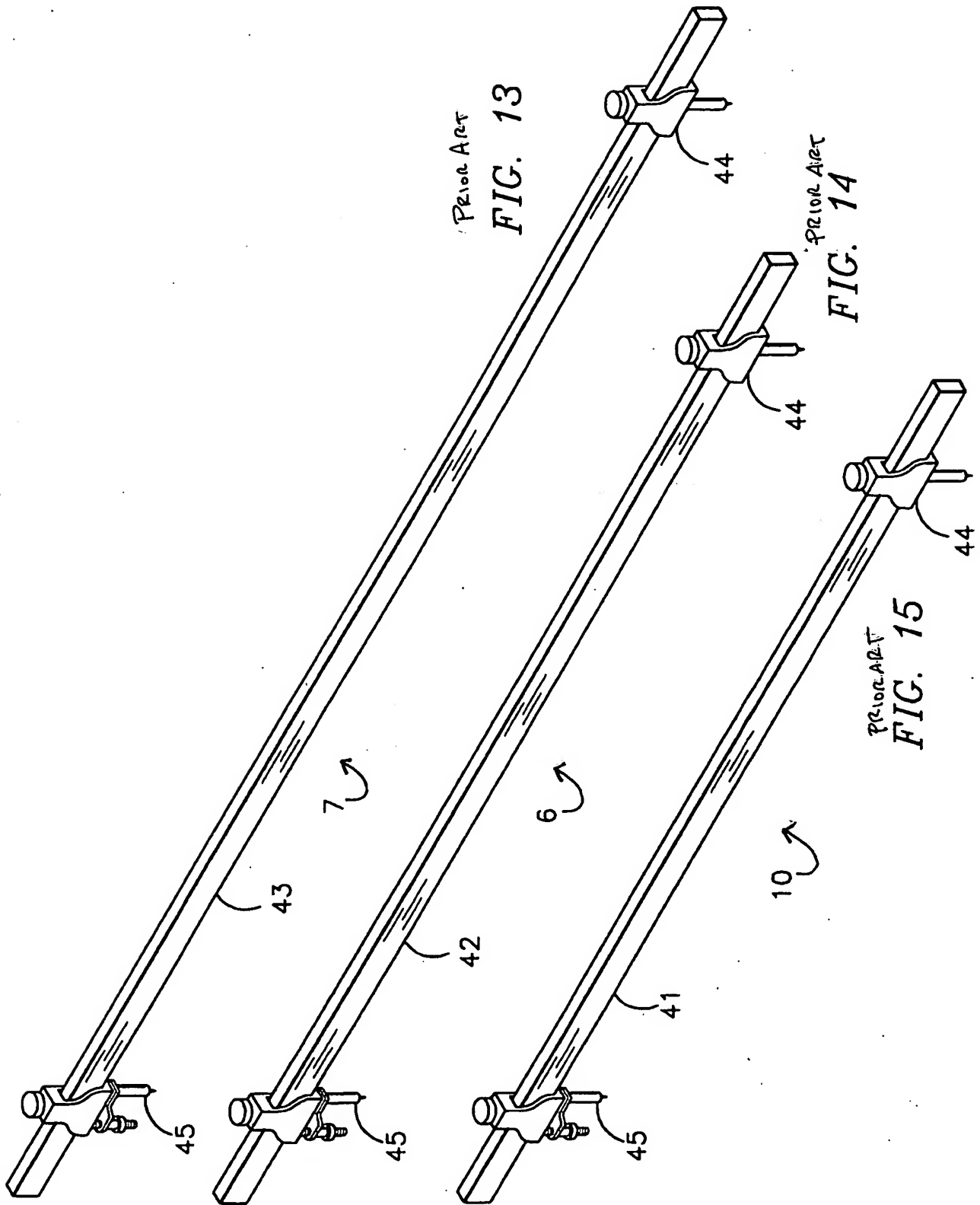
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FIG. 12

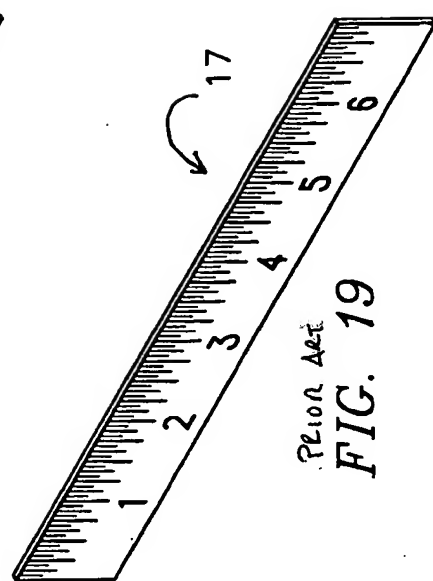
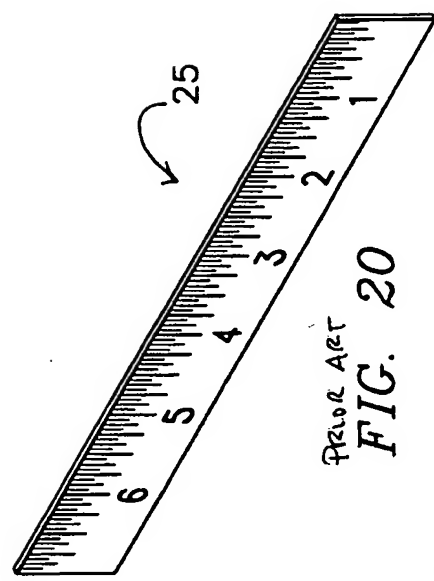
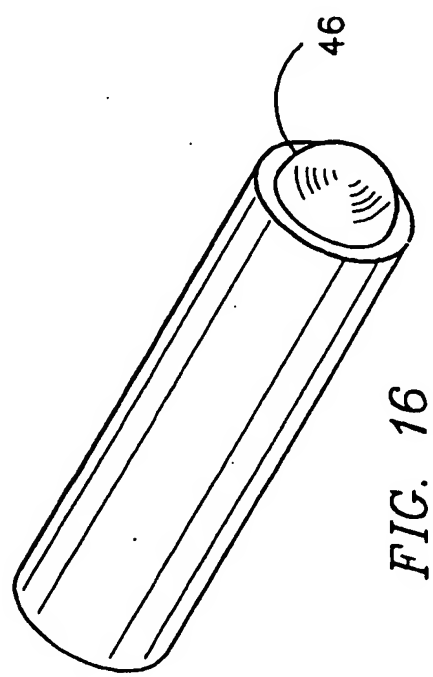
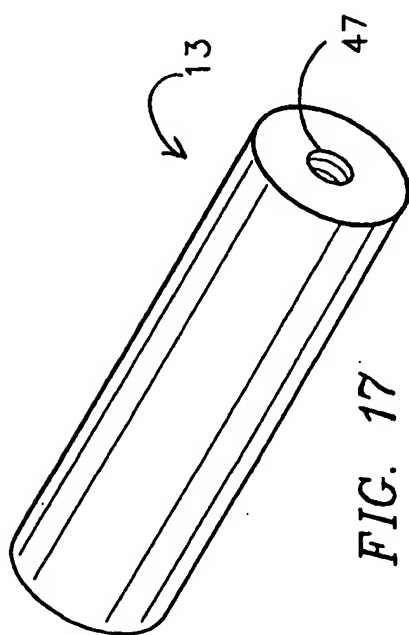
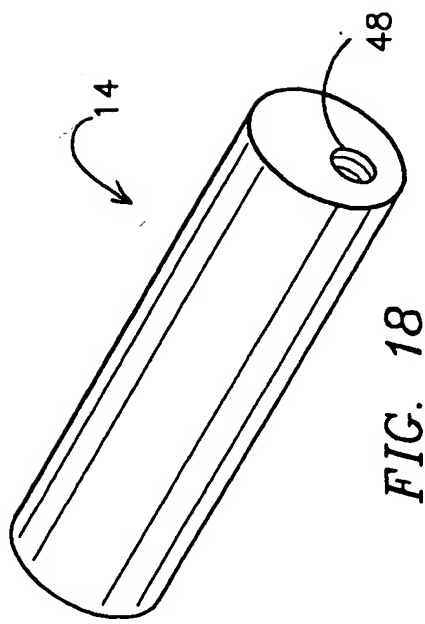
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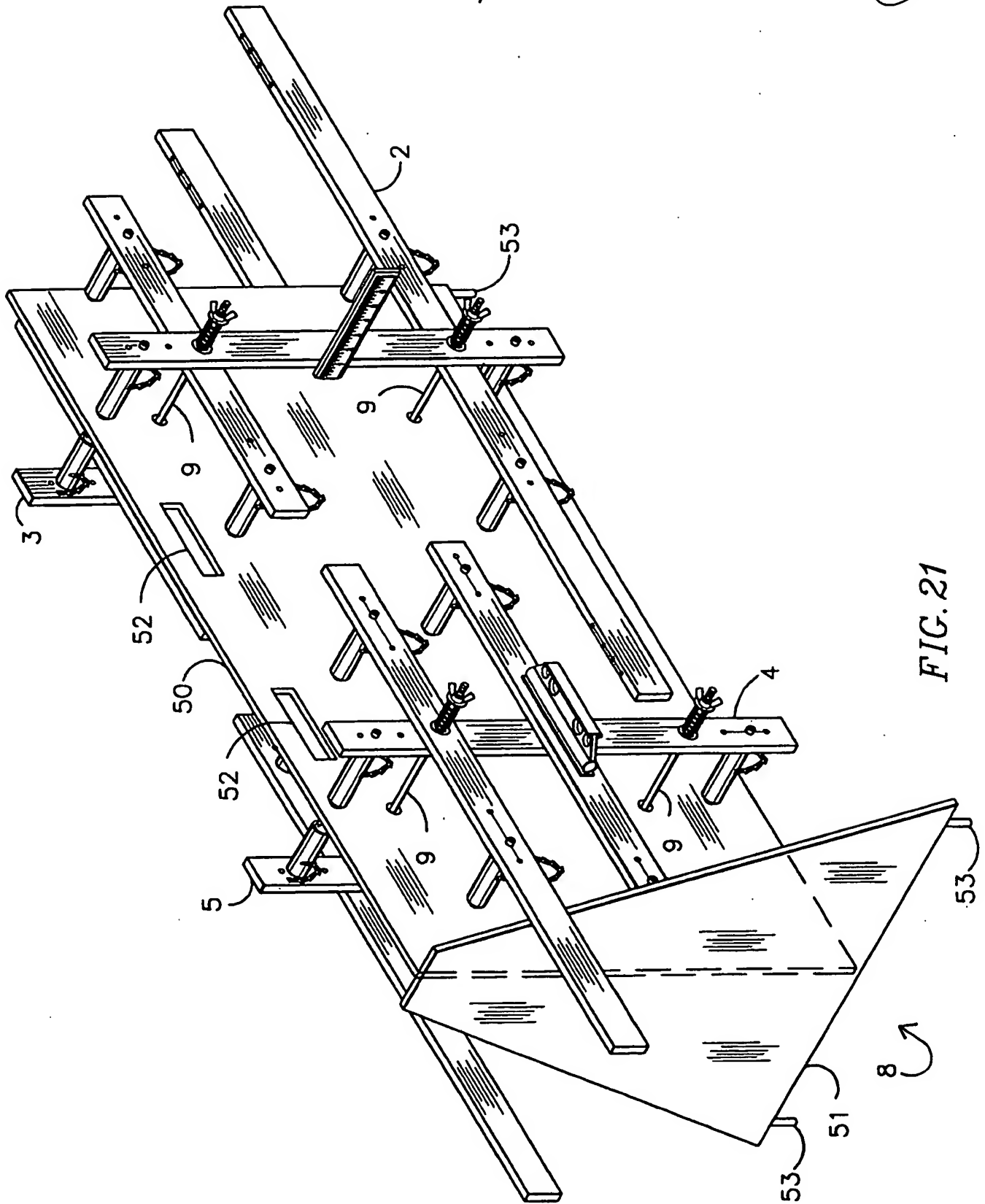


FIG. 21